

Fly Control Incidental to the Residual Spray Program*

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In cooperation with State health departments throughout the southeastern United States, the Public Health Service during the past 6 years has conducted a DDT residual house spraying program in rural areas for malaria control and malaria eradication. The fact that extremely satisfactory malaria mosquito control has been realized is a subject reported in another paper (Bradley and Lyman (1). Since most of you present are familiar with the operational phases of the residual spray program, it will not be necessary to review the details except to say that the inside walls and ceilings of rural homes in designated malaria areas are treated with a 5 percent water emulsion of DDT, xylene, and an emulsifier applied at the average rate of 200 mg./sq. ft. In an effort to obtain better insect control, the treatment was later extended to total premises spraying of barns, stables, privies, and other outbuildings. But the benefits which have been derived from this spray program are by no means confined to malarial mosquito control; for such insects as cockroaches, bedbugs, pest mosquitoes, and house flies have been subjected also to the consequences of contact with residual DDT. It is our purpose here to show something of the relative degree of fly control that has been obtained during the past 3 years.

According to reports from the several States, based primarily upon verbal remarks by householders, DDT was much more effective in controlling house flies during 1945 and 1946 than it has been subsequently. In fact, during those years it seems that the people were much more aware that flies were being killed and actually were more interested in that fact than they were that malaria mosquitoes were being controlled. Since the primary objective of the residual spray program, the control of malarial mosquitoes, was being attained, little notice was given during the early years of

the program to the incidental control of other house-frequenting insects, although we were aware of the excellent results being obtained in the control of these pests. In fact, we know that the popular acceptance of the program was due to a large extent to these side effects. However, in 1947 numerous complaints were received that DDT was not giving as adequate fly control as formerly, and naturally we were interested in determining the reasons for this lack of control, since accumulating evidence about this time, from both field and laboratory studies, indicated that house flies were showing a resistance to DDT.

Accordingly, evaluation of residual spray results in terms of fly control was initiated in 1948. For the past 3 years a total of approximately 30,000 inspections of both sprayed and unsprayed houses has been made. Inside of these houses total fly counts were secured from the one room containing the largest number of flies. As might be expected, the room most frequently containing the largest number of flies was the kitchen; however, a relatively large percentage of rooms (30 percent) other than the kitchen was recorded as having the highest fly count. In table 1 there is presented a comparative 3-year summary of fly counts from the inside of sprayed and of unsprayed houses, taken up to 5 months after spraying, and based upon the average percentages of the houses inspected which fall within certain fly density groups.

It is clearly shown by comparison of these data that a significant degree of fly control was achieved for sprayed houses. In table 1 it may be observed that in each of the 3 years a far greater percentage of sprayed houses fell within the lower fly density groups (0 and 1-10) as compared with unsprayed houses. In other words, sprayed houses had fewer flies than unsprayed houses. For example, approximately twice as many sprayed houses, on the average, had no flies as compared to unsprayed houses. If we assume the relationship that the greater the over-all fly population, the greater

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